

[Subcase]
**SPIN VALVE READ HEAD WITH ANTIFERROMAGNETIC OXIDE FILM
AS LONGITUDINAL BIAS LAYER AND PORTION OF FIRST READ GAP**

ABSTRACT OF THE DISCLOSURE

5 An antiferromagnetic stabilization scheme is employed in a magnetic head for
magnetically stabilizing a free layer of a spin valve. This is accomplished by utilizing
an antiferromagnetic oxide film below a spin valve sensor in a read region and first and
second lead layers in end regions and a ferromagnetic film in each of the lead layers that
exchange couples to the antiferromagnetic oxide film in the end regions. The
ferromagnetic films are pinned with their magnetic moments oriented parallel to an air
10 bearing surface (ABS) of the magnetic head. The ferromagnetic ^{films} ~~film~~ magnetostatically
couples to the free layer which causes the free layer to be in a single magnetic domain
state. Accordingly, when the free layer is subjected to magnetic incursions from a
rotating disk in a disk drive, the free layer maintains a stable magnetic condition so that
resistance changes of the free layer are not altered by differing magnetic conditions of
15 the free layer.